The Maryland Fruit Grower

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ZINC SULPHATE AS A PEACH SPRAY

Zinc sulphate was originally recommended as a control of bacterial spot or Pruni disease of peach, following experiments by Drs. J. W. Roberts and M. C. Goldsworthy of the U. S. Department of Agriculture. Later it was found that the material was of great value as a preventive of arsenical injury to twigs and foliage. Its value in control of Pruni disease and brown rot became a question. However, Roberts and Goldsworthy state that two pounds of zinc sulphate (monohydrate) per 100 gallons of spray (as recommended in Maryland Spray calendar) will control arsenical injury, and 5 pounds per 100 gallons of spray will reduce Pruni disease, in addition to control of arsenical injury. This disease appears as lesions on the twigs, as shot-hole injury on the leaves, with considerable leaf-fall during the summer, and also as scabby spots on the peach fruits. The Pruni disease is a little difficult to identify, as very often sulfur injury will cause considerable leaf-fall and lead arsenate injury or brown rot will cause lesions on the twigs.

TREE SCRAPING

Thousands of Maryland apple trees have been scraped during the past winter, in some cases the scraping having been carried far up the tree to remove all rough bark. Some growers doubt the wisdom of tree scraping. The main idea of scraping is to remove any rough places where codling moth worms may find protection, and spin up their cocoons, emerging as adult moths, able to have large families. The serious infestations of scurfy scale in some orchards during the past few years has made it necessary to scrape the bark off infested trees, to get better spray coverage on scale that was caked under the bark. Certainly, if any intensive attempt is made to control codling moth, bark scraping must be included, for tree-banding is a part of an intensive control effort, and bands are a waste of time unless rough bark is removed to entice the worms to enter the tree bands.

Dr. C. Graham, of Maryland, has given growers excellent practical advice on codling moth control, and in March, 1939, "Virginia Fruit", A. M. Woodside of Virginia Experiment Station reported upon examinations of trees for locations of moth cocoons. He stated, in part—"The results of these examinations indicate two points where apple growers might increase the efficiency of their control practices. The first of these is in the scraping of trees. Growers who scrape their apple trees ordinarily give more attention to the scraping of the trunks, and pay little attention to any but the largest branches. If the condition of the orchard where these investigations were conducted is typical, about three-fourths of the worms on the older trees will be found on the branches. For this reason, those parts of the trees should receive more atten-

tion when the scraping is being done.

The second point of importance is the very high percentage of the worms that were found in pruning wounds and cracks in wood. This emphasizes the importance for more care in pruning in order to avoid dying back of branches, and in removing all stumps of broken branches. A reasonable amount of care given to this work should pay big dividends in reducing the hiding places for worms, and in making control measures more effective."

Have you read the advertisements?

ORIENTAL MOTH BAIT PAILS

Oriental peach moth bait pails may or may not pay. That seems to depend upon the individual grower's opinion. M. L. Bobb, of the Virginia Experiment Station, reported before the winter meetings of the Maryland State Horticultural Society, that we can expect about 6% reduction of adult moths based on his experiments. He used quart motor oil cans, fitted with a wire bail. The cans were hung rather high at about the center of the tree, and placed so as to swing free in the wind, and partly shaded, to prevent evaporation. The bait was changed once a month. About 8 pails per acre were sufficient, these being placed in trees forming a square, about half-way between the center and the outer border of the acre. The bait material cost about 5 cents per acre. He placed the pails in trees about the first part of May. Mr. G. William Gardenhour uses the pails with good results and uses about the same mixture as that used by Mr. Bobb. However, he changes the bait weekly. The mixture used is: 1 part glutrin to 20 parts of water, and 1 quart of terpinyl acetate to 250 gallons of water (or 2½ gallons of glutrin and 1/10 of a pint of terpinyl acetate to 50 gallons of water).

Remember our advertisers

SPEAKING OF FIRES

"Wisconsin Horticulture" recently printed a few lines telling about the hospital patient who asked his nurse, "Why are my window blinds pulled down?" The nurse replied, "There's a big fire across the street, and we didn't want you to wake up and think that your operation had not been successful."

That was a reminder that farm fires are serious things, and fires are caused by so many trifling or careless acts or conditions. The February, 1939, Maryland Extension Service News stated:—"Loss from rural fires averages $400 every minute of the day, a loss that the village home owner or farmer might reduce by his own effort. The farmer in particular may be his own building inspector, zoning officer, and, in emergency, his own fireman and fire chief. If he does a good job in each case, he can do a lot toward reducing an annual rural fire loss for the United States of about $225,000,000.

A report of engineers in the U. S. Department of Agriculture to the National Fire Protection Association gives some definite recommendations for farmers and householders.

When possible, farm buildings should be in a line at right angles to prevailing winds. With this arrangement, there is less danger of sparks being carried from one building to another. Roofs of major buildings should be of fire-resistant material. Chimneys may be cleaned of soot with a few bricks or rocks in a sack at the end of a long rope. Furnaces, stoves, and stove pipes properly installed and inspected regularly reduce a common cause

MARYLAND FRUIT GROWERS'

NEWS LETTER

April, 1939

Cold Storage Holdings

The Cold Storage Report of the U.S. Bureau of Agricultural Economics showed April 1 cold storage holdings as follows:

	April 1 5-yr.Average 1934-38	April 1, 1938	March 1, 1939	April 1, 1939
Apples - barrels	138,000	83,000	81,000	25,000
Apples-Western box	4,678,000	4,807,000	7,959,000	4,977,000
Apples-bushels and Eastern box	3,913,000	6,983,000	7,035,000	4,082,000
Total bushels	9,005,000	12,039,000	15,237,000	9,134,000

More Hose Mileage

In April, "Tennessee Horticulture", we find the following: "For a good hose rack on the portable sprayer, use half of a large-size drop-center tire rim. Heavy bar iron or angle iron brackets may be welded or belted to the rim, and bolted to the tank. The curved valley holds the hose, but avoids wear and injury caused by sharp bending over the usual bracket hooks. Instead of two 50-foot hose leads, try one 35 and one 65-foot length. High grade swivel connections are expensive, but are paid for in time and hose bills."

About Peaches

Dr. M.J. Dorsey of Illinois, speaking at the West Virginia Horticultural Society meeting stated that there were 2,000 to 12,000 blossoms per peach tree. There were three "drops" of peach fruit: (1) - 10 days after bloom, due to frozen pistils; (2) - 35 days after bloom, due to imperfectly pollinated fruits; (3) - 50 days after bloom, consisting of fair-sized fruit. This last drop is the main "June drop".

Growth periods were as follows: Forty days after bloom, the pits begin to harden. Seventy-five days after bloom, internal changes begin, in the fruit. One hundred and ten days after bloom, the final swell begins. These are approximate averages referring to Elberta, and will vary with season and variety.

The number of peaches per bushel (50 lbs.) was given as follows:

2 inch	243	2 3/4 inch	125
2¼ "	220	3 "	96

Competition

In a digest of the New York State Horticultural Society Meetings, Dr. H.B. Tukey, writing in "The Rural New Yorker". March 11, 1939, wrote, in part, as follows:

"Although bowing to other fruits, the apple still held the center of the stage. First, it was pointed out that the commercial crop of the king of fruits had fallen from 70,000,000 bushels to 40,000,000 bushels. There are now as many oranges taken to market and consumed as apples; and there are 30,000,000 bushels of grapefruit. In fact the total volume of all citrus crops consumed is greater than that of the apple. One chain store in Philadelphia in one year sold 108,000 bushels of apples 101,000 boxes of oranges, 29,000 boxes of grapefuit, and 124,000 40-pound bunches of bananas. Twenty-five retail stores in Philadelphia sold in a 13-week period, $1,659.00 worth of apples and $5,300.00 worth of oranges.

Why is this situation as it is? For one reason, it was said, because the housewife with 25 cents to spend can have her choice of eight pounds of oranges or eight pounds of grapefruit, or only 5½ pounds of apples. Further, she has a choice of several grades of oranges and grapefruit, brt usually only one grade of apples. True, the citrus industry is facing a worse situation in over-production than the apple has ever thought of, yet the low prices and high quality definitely spell competition and trouble ahead for fruits that fall behind.

What to do about it? First, it was said, improve the grade with no attending increase in price. Second,use the distributing channels available; don't buck them. Keep the poor grades off the market by putting them to use in fruit juices and various by-products. New York State, it was said, can support a $10,000,000 cider business when once it has been developed with a high-grade product."

The Export Season

Growers interested in the export trade should write Foreign Agricultural Service, U.S. Department of Agriculture, Washington, D.C. for a copy of a F.S.A.-452, "Statistical Report of the United States Deciduous Fruit Export Season, 1937-38" released March, 1939. Note that this is not the present season 1938-39. The report is easy to read, and is interesting. The part concerning apples contains the following comments:

Exports increase sharply in 1937-39.

"Principally because of the large United States apple crop in 1937 and the resulting low prices, exports of fresh apples during the 1937-38 season, July to June, jumped to 10,960,000 bushels compared with 6,800,000 bushels shipped the preceding season. The total, however, was below the average movement of 12,960,000 bushels for the 5 years, 1931-32 to 1935-36. The United Kingdom was the principal market, accounting for 39 percent of the total shipments - 5 percent more than the proportion taken in 1936-37. France provided the second most important outlet, followed by Belgium, the Netherlands, Germany, and Sweden. Shipments to Canada declined almost 200,000 bushels, chiefly as a result of the large Canadian crop. Denmark, China, and Tunisia, all of which take negligible quantities of fresh apples, were the only other countries to show decreases over the previous season.

Boxed Shipments increase

Exports of boxed apples totaled 7,507,000 boxes, or 2,300,000 more than

shipments the previous season but slightly under the average of 7,762,000 boxes exported in the 5-year period 1931-32 to 1935-36. The United Kingdom, the principal outlet, accounted for 2,201,000 boxes, followed by France which took 1,430,000 boxes, the Netherlands, Germany, Belgium, Canada and Sweden. Boxed apples brought an average of $1.26 for the season, considerably less than the $1.57 per box received the previous year but only slightly less than the 5-year average return. Boxed shipments represented 15 percent of the total production in the 4 Western "Box" states.

Barrel and basket movement much heavier

The movement of apples in barrels increased from 446,000 to 889,000 barrels. The United Kingdom took 597,000 barrels, or 67 percent of the total exports in barrels. Belgium was the only other country to account for more than 100,000 barrels. Value averaged $3.95 per barrel, compared with $4.17 during the 1936-37 season.

Exports of apples in baskets increased almost four-fold, rising to 784,000 baskets from 210,000 baskets the previous season. Belgium was the most important outlet, taking 311,000 baskets, followed by the United Kingdom with 303,000. These two countries accounted for 78 percent of the total basket shipments. Apples in baskets averaged $1.71, which was slightly less than the return during 1936-37, but equal to the average return for the 4 seasons, 1932-33 to 1935-36. Exports in barrels and baskets were equivalent to 4 percent of the total production in the 14 Eastern states.

New York regains first place as point of export

New York City, which dropped to second place as a point of export in 1936-37 because of the small barrel and basket movement, regained first place during the past season. Around 75 percent of the barrel and basket shipments and 20 percent of the boxed apples were cleared through this port. Over half the total boxed shipments left Seattle, Washington and Portland, Oregon, which followed New York as ports of heaviest shipment.

Canned apple exports drop slightly

Exports of canned apples and apple sauce dropped to 238,000 cases in 1937-38. This quantity was less than shipments in 1936-37 and the preceding 5-year average by 3,000 and 100,000 cases, respectively. The United Kingdom as usual took practically the entire canned export.

Increase in dried apple shipments

Dried apple shipments reached 12,200 short tons, compared with 10,600 in 1936-37. The Netherlands replaced France as the principal outlet, and was followed by France, Sweden, and the United Kingdom. Because of exchange and trade restrictions, Germany, which formerly was the leading market for dried apples, imported only 781 short tons, compared with an average of 6,594 tons during the period 1931-32 to 1935-36. Dried apple exports were equivalent to over 3½ million bushels of fresh apples and amounted to nearly 49 percent of the total dried apple production in this country.

The movement of dried apple waste, except pomace, the only other apple product reported separately, totaled 1,708 short tons, a record high for the four seasons for which statistics on exports of this product are available. Sharp increases over the past seasons were reported for Belgium, the Netherlands, and France, these countries taking practically the entire movement."

Extension Service,
University of Maryland.

A.F.Vierheller,
Extension Horticulturist.

of fire.

A system of grounded conductors gives protection against lightning. Carelessness in handling lamps and lanterns, in disposing of ashes, in storing and handling gasoline and kerosene, and in allowing rubbish to accumulate where it becomes a fire hazard accounts for many farm fires. In building, closing all open spaces in hollow tile at each floor line of the home keeps a fire from spreading quickly from one story to another. In addition, it is wise to have ladders and water near at hand for emergencies."

Have you read the advertisements?

THINNING STRAWBERRY PLANTS

Fruit growers thin fruits and in California, grape growers actually thin grapes from the bunch, to assure better sized fruits. In the past several years, new varieties of strawberries have been developed, and some of them have a tendency to form too many plants, resulting in dense, crowded plant-set. Some growers hoe out the excess plants, and one Maryland strawberry grower has developed the use of a hay rake, running it across the plant rows, and tearing out great numbers of plants which are then cut off by running a home-made plant cutter down the rows.

Dr. A. L. Schrader conducted some experiments in Salisbury section in 1936, where runner plants were spaced 7 and 11 inches apart, leaving 8 and 5 plants per runner plant, respectively, or on an acre basis limiting plants to 60,000 and 30,000 respectively, in comparison to 600,000 plants per acre, as found in the matted row system.

The results as given below are reported in "Transactions of Peninsula Horticultural Society, 1938" (Miscellaneous Contribution No. 674, Dept. of Horticulture, Md. Agr. Exp. Sta.)

Yields of Strawberry Varieties as Influenced by Plant Spacing—Salisbury, Md.—1936.

Yield of No. 1 Berries—Quarts per Acre

Variety	Matted Row	7 Inch Spacing	11 Inch Spacing	Average
Dorsett	1510	3295	3397	2734
Fairfax	2060	3054	3223	2779
Blakemore	657	1660	1693	1337
Catskill	1653	2422	2753	2279
Premier	1312	2851	2537	2233
Average	1438	2656	2721	

Total Yield—Quarts per Acre

Dorsett	3396	5566	5189	4717
Fairfax	4154	5510	5771	5145
Blakemore	2583	4754	4577	3971
Catskill	3732	4770	5244	4582
Premier	3929	5283	4833	4682
Average	3559	5177	5123	

In discussing results, the author states, "The yield increases noted are not due to an increased number of berries on the thinned rows as it was

found by actual count that the matted rows produced as many berries as were produced with the thinned rows, except under extremely dry conditions. Therefore, the increased yields due to plant thinning was due to the increased size of the berry, or to put it another way, to a large number of the No. 1 berries."

It will be noted that varieties are not alike in their response to plant thinning.

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She: "Where is your chivalry?"
He: "I traded it in for a Buick."

Have you read the advertisements?

THE "X" DISEASE OF PEACH

Some growers have inquired about the "X" disease of peach which has been given some publicity. In algebra the letter "x" is used to denote the unknown quantity. When this peach disease was first found in Connecticut in 1933, it was given the name "X Disease", as its cause was unknown. It has since been found that it is a virus that also attacks the choke cherry, and is now called "Yellow-Red Virosis". The control seems to be to destroy wild choke cherry. The disease has been found in Connecticut, Massachusetts, eastern New York, and possibly Rhode Island and Colorado. The choke cherry is native to the colder climates. Description of the disease is found in "New Jersey State Horticultural Society News, page 1105, March, 1939 (Vol. 20, No. 3), and in Connecticut Station Circular 122, Connecticut Agricultural Station, Storrs, Connecticut. It is not thought that the disease will become a factor in Maryland. The disease may be transmitted by budding or grafting from diseased stock.

Remember our advertisers

CROP PROSPECTS

Some fruit crop prospects have come in from various sections, having to do with probable freeze injury, but it is too early to estimate much about the crop, as there are such things as fruit set, June drop, scab infection, etc., to consider, no matter how much bloom the trees have shown.

Trees are still being removed in various numbers, in the Eastern States and the April 1 crop prospect report stated that "tree removals have been more or less heavy in Washington, Idaho and California."

Have you read the advertisements?

ABSTRACTS OF EXPERIMENTAL RESULTS

The following abstracts are reprinted from Experiment Station Record, Vol. 80 (No. 4); April, 1939:

The recovery of the apple from freezing injury, M. J. Dorsey (Univ. Ill.) (Amer. Soc. Hort. Sci. Proc., 34 (1937), p. 115). At approximately 28°F., ice masses began to form in the succulent tissues of the flowers or young fruits. In the case of pistils subjected to temperatures below 28° the epidermis was found to be separated completely from the deeper tissues at the third or fourth cell layer. Under favorable conditions the cells bridged the broken areas to the extent of complete recovery within 3 weeks. The set following

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• **Here is the simple 1-2-3 of efficient control of Apple Scab, Codling Moth, Curculio, etc.:**

1. **FLOTOX Wettable Sulphur, or FLOTOX Paste Flotation Sulphur.**
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• **Glossy fruit finish at harvest time depends on the mildness of the spray materials used in the Calyx and First Cover Sprays . . . another reason for using the "FLOTOX" — "ORTHEX" — ORTHO Lead Arsenate program.**

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freezes is believed to be a result of such recovery rather than escape from injury. Where seeds were killed, the fruits abscised (dropped).

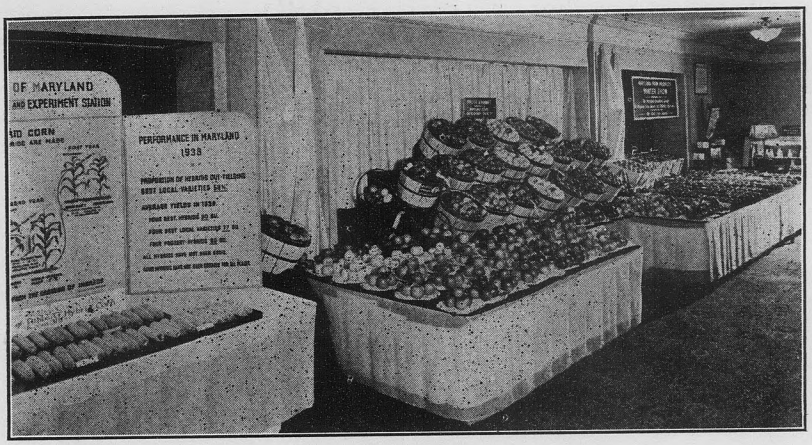
Results of further studies on the effect of bactericides on pollen germination and fruit set, L. H. MacDaniels and E. M. Hildebrand. (Cornell Univ.) (Amer. Soc. Hort. Sci. Proc., 34 (1937), pp. 14-23). Continuing these studies (E.S.R., 72, p, 187), the authors present results obtained in the years 1934-37, inclusive, in spraying and dusting apple trees during the blooming period with various copper and sulfur materials. From a practical viewpoint, the various materials were applied without seriously reducing the set of fruit. This was particularly true with bordeaux mixture 1-3-50 and 20-80 copper-lime dust. At the same time in the laboratory most of the materials proved highly toxic to apple and pear pollen. The relative harmlessness in the orchard is related to the structure of the stigma (female flower part) and the fact that it is not easily wetted. Furthermore, part of the blossoms may have been pollinated prior to the initiation of treatments.

Increasing the amount of red color on apples after harvesting, M. B. Hoffman. (Cornell Univ.). (Amer. Soc. Hort. Sci. Proc., 34 (1937), pp. 212-216). Observing that harvested apples exposed to direct sunlight are often injured, the author reports that in the case of McIntosh apples, spread thinly on straw and covered with 1, 2, and 3 layers of cheesecloth laid directly on the fruit or suspended directly above, splendid results were secured in the case of 3 layers of cloth 18 in. above the fruit. Conditions beneath a large, low-headed apple tree would be ideal for coloring apples. Where fruit was laid on a poultry wire frame suspended 18 in. above the soil under a tree with white cloth laid on the soil, McIntosh apples took on a high degree of color over the entire surface. When stored, the fruits held for from 7 to 14 days for coloring kept fully as well as those stored immediately.

Relation of soil moisture to firmness and storage quality of apples, M. H. Haller and P. L. Harding. (U.S.D.A.). (Amer. Soc. Hort. Sci. Proc., 34 (1937), pp. 205-211, fig. 1). Observations on apples obtained from irrigated and nonirrigated plats at Hancock, Md, showed a great reduction in size when deficiencies in soil moisture occurred during the growing period. The percentage of dry weight in the harvested fruit was considerably higher in apples from the dry plats. Both at harvest and after storage the fruit from the irrigated plats was consistently softer than that from the nonirrigated. Apples grown with ample moisture were more susceptible to scald, but withal the greater yields and higher quality far offset any of the handicaps.

Two cases of potassium deficiency in peach orchards in south central Pennsylvania, C. O. Dunbar and R. D. Anthony. (Pa. Expt. Sta.). (Amer. Soc. Hort. Sci. Proc., 34 (1937), pp. 320-325, figs. 4). Seven-year-old Elberta peach trees which failed to set fruit produced leaves of a pale olive green color, with edges bordered with red but with only occasional marginal disintegration. Nearly all the leaves were crinkled along the midrib and laterally rolled toward the midrib. Analyses of the rolled leaves showed them to be very low in K and N. Applications on July 2 of various correctives, including compounds of K (potash), Mg, (magnesium), B, (boron), Zn, (zinc), Cu, (copper), N, (nitrogen), etc., showed marked response only in the case of the K (potash) treatments, especially sulfate of potash. Fruit-bud formation was also greatly stimulated. In another orchard, where a

similar condition was observed but where K (potash) was applied later, recovery was not as complete. One row which during the preceding winter had received a heavy application of manure did not show any K (potash) deficiency.



Second Annual Fruit Show, Baltimore, January 11-12, 1939. Sponsored by Maryland State Horticultural Society. Premiums furnished by Maryland State Fair Board.

BULLETINS YOU MAY LIKE

The Planting and Early Care of the Apple Orchard. Extension Bul. 384, 1938. Cornell University Extension Service, Ithaca, N. Y.

Grape Production in New York. Extension Bul. 375. 1937. Cornell University Extension Service, Ithaca, N. Y.

Orchard Soil Covers. Extension Bul. 506. 1937. Oregon State College Extension Service, Corvallis.

Soil Erosion in Michigan Orchards. Circular Bul. 162. 1937. Michigan Agr. Exp. Station, East Lansing.

The Relation of Nitrogen and Soil Moisture to Growth and Fruitfulness of Apple Trees Under Different Systems of Soil Management. Bul. 414. 1936. Purdue Agr. Exp. Station, Lafayette, Indiana.

Nutrition of Apple Trees. Bul. 626. 1937. New Jersey Agr. Exp. Station, New Brunswick.

An Economic Study of Some Problems of Western Illinois Apple Growers. Miscellaneous Report No. 13. 1937. Farm Credit Administration, Cooperative Division, Washington, D. C.

Traffic Cop: "Hey, you can't make a turn to the right."

Lady Motorist: "Why not?"

Traffic Cop: "Well, a right turn is wrong here—the left turn is right. If you want to turn right turn left and then—aw, go ahead!"

New Economical Spray of Pyrethrum-Rotenone

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D-X is the result of the efforts of several prominent entomologists of the Crop Protection Institute in producing a **low cost substitute for nicotine.** It is a combined pyrethrum and rotenone spray for the first time within the means of the commercial fruit grower. Yet D-X has many features not found in any other contact spray. It is pleasant to use.

D-X FOR APHIS. Put D-X (1 pint to 100 gallons) in your sprays for aphis. The pyrethrum paralyzes immediately and the rotenone gives a residual action for many days. D-X not only saves money but improves control.

> A New York grower writes,—"D-X is the finest spray for aphis I have ever used, and I have tried them all."

D-X FOR LEAF HOPPERS. Don't wait until late summer to attempt leaf hopper control. Use D-X (1 pint to 100 gallons) as soon as the wingless nymphs appear this month. The winged nymphs in the late summer are so active that it is difficult to contact them. We have prepared a splendid treatise on this subject which is yours for the asking.

D-X FOR CODLING MOTH. For a non-poisonous codling moth spray, starting with emergence of the second brood, use 1 pint D-X combined with ¾ gallon of Pratt's Summer Spra-Cream to 100 gallons. This spray kills live moths, destroys eggs, and remains present for later hatching larvae for many days. Ask for descriptive literature.

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